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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/500,648

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EXAMINER

CHONG, DAVID W

ART UNIT

PAPER NUMBER

4151

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/500,648	Applicant(s) GLUCH ET AL.	
	Examiner DAVID CHONG	Art Unit 4151	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 20-57 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 20-57 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 July 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Specification

1. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:
2. Claims 33-36, 38, 52-55 and 57 recite the term "spectral weighting" which is not recited by the specification.
3. Claims 36-37 and 55-56 recite the term "resistor" which is not recited by the specification.

Claim Objections

4. Claim 34 and 53 recite the limitation "the weighting curve" in line 1. There is insufficient antecedent basis for this limitation in the claim.
5. Claims 41-43, 48 and 53 are directed towards an arrangement but do not further limit the structure of the apparatus.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
7. Claims 20 and 39 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

8. Regarding claim 20, the phrase "such as" and "particularly" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

9. Regarding claim 39, the phrase "such as" and "particularly" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

11. Claims 20, 23-25, 27, 30-32, 39, 42-44, 49-51, 55, 56 are rejected under 35 U.S.C. 102(e/a) as being anticipated by U.S. Patent No. 6,858,852 to Wolleschensky et al.

12. For claim 20, Wolleschensky et al. teach a method for identifying fluorescing substances (col. 4, lines 32-33) comprising the steps of carrying out a spectral splitting of sample light (col. 4, line 56), a detector having 32 channels (col. 5, lines 60-61) and a

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summation of signals of the individual channels for at least a portion of the detection channels (col. 6, lines 31-35).

13. For claims 23 and 42, Wollenschensky teaches that regions of interest are determined automatically (col. 7, lines 43-48).

14. For claims 24 and 43, Wolleschensky teaches summing of the detection channels of at least one spectral region of interest (col. 7, lines 14-17).

15. For claim 25, Wollenschensky teaches switching off a channel (col. 9, line 18).

16. For claim 27, Wolleschensky teaches that spectrometers can record spectrum as an average over a region (col. 3, lines 65-67).

17. For claims 30-32, Wolleschensky teaches providing a dispersive element (col. 5, line 36) and a receiver arrangement which is a line detector (col. 5, lines 38-40) which is the same as the multichannel PMT (col. 8 line 5) as shown in Figure 8 (multichannel detector).

18. For claim 39, Wolleschensky et al. teach an arrangement for identifying fluorescing substances (col. 4, lines 49-54) comprising a means for carrying out a spectral splitting of sample light (p. 2, lines 17-18) using a diffraction grating (p. 3, line 19), a detector having 32 channels (col. 5, lines 60-61) and a summation of signals of the individual channels for at least a portion of the detection channels (col. 6, lines 31-35).

19. For claim 44, Wollenschensky teaches switching off a channel using a multiplexer (col. 9, line 18-19).

20. For claims 49-51, Wolleschensky teaches providing a dispersive element (col. 5, line 36) and a receiver arrangement which is a line detector (col. 5, lines 38-40) which is the same as the multichannel PMT (col. 8 line 5) as shown in Figure 8 (multichannel detector).

21. For claim 55, Wolleschensky teaches that the analog data processing is performed by a demultiplexer which is a resistor cascade (Wolleschensky, claim 15)

22. For claim 56, Wolleschensky teaches that individual voltage signals can be switched or adjusted to different sumpoints (col. 8, lines 54-55).

Claim Rejections - 35 USC § 103

23. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

24. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

25. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

26. Claims 21, 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,858,852 to Wolleschensky in view of U.S. Patent No. 6,483,112 to Lewis.

27. For claims 21 and 22, Wolleschensky teach the steps of claim 20. It does not teach that at least one standard sample is on the sample carrier in addition to the substances being examined. Lewis teaches a cell array being analyzed by a spectrometer. It teaches that at least one of the cells can include a reference substance (col. 2, lines 20-21). At the time of the invention it would have been obvious to a person of ordinary skill in the art to combine the teaching of the reference substance as per Lewis into the teaching of Wolleschensky in order to have a standard sample for comparison with the sample being analyzed to in order to account for any fluorescence due to outside factors. Wolleschensky then teaches in col. 6, lines 39-42 that the spectral components are recorded.

28. Claims 28 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,858,852 to Wolleschensky in view of U.S. Patent No. 6,483,112 to Lewis and further in view of WO/00/00/58715 to Cooper et al.

29. For claims 28 and 29 Wolleschensky teach the elements of claim 20.

Wolleschensky teaches that two fluorescence measurements are taken and then the ratios of both intensities (col. 4, lines 11-13). It does not teach carrying out a spectral unmixing. Cooper teaches a filter means for diffracting radiation of two emitted wavelengths to different extents (unmixing), thereby creating two distinct signal patterns on the detection means (p. 5, lines 27-31). At the time of the invention it would have been obvious to a person of ordinary skill in the art to combine the teaching of Cooper into the teaching of Wolleschensky so that when multiple fluorescent dyes are used, their emissions can be distinguished and picked up by the detector. Wolleschensky/Cooper does not teach the use of a standard sample. Lewis teaches a cell array being analyzed by a spectrometer in which at least one of the cells can include a reference substance (col. 2, lines 20-21). At the time of the invention it would have been obvious to a person of ordinary skill in the art to combine the teaching of the reference substance as per Lewis into the teaching of Wolleschensky/Cooper in order to have a standard sample for comparison with the sample being analyzed in order to account for any fluorescence due to outside factors.

30. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wolleschensky in view of U.S. Patent No. 5,292,484 to Kelln et al.

31. For claim 26, Wolleschensky teaches the elements of claim 20. It does not teach that a relative signal intensity is determined from a quotient. Kelln teaches a relative intensity determined from a quotient in which a reading is made by subtracting an offset and then dividing by a reference signal (col. 5, lines 39-42). At the time of the invention

it would have been obvious to a person of ordinary skill in the art to use the teaching of this quotient in Kelln. This would compensate for any outside light signals from interfering with readings and the dividing of the reference signal would cancel out any effects due to changes in light intensity.

32. Claims 33-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wolleschensky in view of U.S. Patent No. 4,800,279 to Hieftje et al.

33. For claim 33, Wolleschensky teach using a summation of the channels of the signals of the detection channels, but it does not teach carrying out a spectral weighting between a plurality of detection channels. Hieftje et al. teach a method of near infrared evaluation of physical properties of samples in which absorbance is measured and then corrected by the corresponding weighting constants (Abstract, lines 7-8). At the time of the invention it would have been obvious to a person of ordinary skill in the art to combine the teaching of Hieftje with the teaching of Wolleschensky so that the portion of the wavelength that will accurately quantify the property being measured is used (col. 6, lines 46-47).

34. For claim 34, Hieftje shows in Fig. 1 of actual heat of formation vs. near infrared heat of formation. This is a "calibration curve" plotting predicted and actual values which is shown in a straight line.

35. For claims 35, Wolleschensky teaches that the sum signals are converted to digital signals and further processed by the computer (col. 8, lines 62-64).

36. For claim 36 Wolleschensky teaches that the analog data processing is performed by a demultiplexer which is a resistor cascade (Wolleschensky, claim 15)

37. For claim 37 Wolleschensky teaches that individual voltage signals can be switched or adjusted to different sumpoints (col. 8, lines 54-55).

38. For claim 38, Hieftje teaches that different wavelengths can be chosen which correlate optimally to the physical properties being measured. By choosing different wavelength ranges for correlation (col. 2, lines 33-36), the weighting curve is therefore adjusted.

39. Claims 40-41, are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,858,852 to Wolleschensky et al. in view U.S. Patent No. 6,483,112 to Lewis.

40. For claims 40 and 41, Wolleschensky teach the elements of claim 39. It does not teach that at least one standard sample is on the sample carrier in addition to the substances being examined. Lewis teaches a cell array being analyzed by a spectrometer. It teaches that at least one of the cells can include a reference substance (col. 2, lines 20-21). At the time of the invention it would have been obvious to a person of ordinary skill in the art to combine the teaching of the reference substance into the teaching of Cooper/Wolleschensky in order to have a standard sample for comparison with the sample being analyzed to in order to account for any fluorescence due to outside factors. Wolleschensky then teaches in col. 6, lines 39-42 that the spectral components are recorded.

41. Claims 47 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,858,852 to Wolleschensky in view of U.S. Patent No. 6,483,112 to Lewis and further in view of WO/00/00/58715 to Cooper et al.

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42. For claims 47 and 48 Wolleschensky teach the elements of claim 39.

Wolleschensky teaches that two fluorescence measurements are taken and then the ratios of both intensities (col. 4, lines 11-13). It does not teach carrying out a spectral unmixing. Cooper teaches a filter means for diffracting radiation of two emitted wavelengths to different extents (unmixing), thereby creating two distinct signal patterns on the detection means (p. 5, lines 27-31). At the time of the invention it would have been obvious to a person of ordinary skill in the art to combine the teaching of Cooper into the teaching of Wolleschensky so that when multiple fluorescent dyes are used, their emissions can be distinguished and picked up by the detector. Wolleschensky/Cooper does not teach the use of a standard sample. Lewis teaches a cell array being analyzed by a spectrometer in which at least one of the cells can include a reference substance (col. 2, lines 20-21). At the time of the invention it would have been obvious to a person of ordinary skill in the art to combine the teaching of the reference substance as per Lewis into the teaching of Wolleschensky/Cooper in order to have a standard sample for comparison with the sample being analyzed in order to account for any fluorescence due to outside factors.

43. Claims 45 and 46 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wolleschensky in view of U.S. Patent No. 5,292,484 to Kelln et al.

44. For claim 45, Wolleschensky teach the elements of claim 39. It does not teach a means for determining a relative signal intensity is from a quotient. Kelln teaches a relative intensity determined from a quotient in which a reading is made by subtracting an offset and then dividing by a reference signal (col. 5, lines 39-42). At the time of the

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invention it would have been obvious to a person of ordinary skill in the art to use the teaching of this quotient in Kelln. This would compensate for any outside light signals from interfering with readings and the dividing of the reference signal would cancel out any effects due to changes in light intensity.

45. For claim 46, Wolleschensky teaches that spectrometers can record spectrum as an average over a region (col. 3, lines 65-67).

46. Claims 52-54 and 57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wolleschensky in view of U.S. Patent No. 4,800,279 to Hieftje et al.

47. For claim 52, Wolleschensky teach using a summation of the channels of the signals of the detection channels, but it does not teach a means for carrying out a spectral weighting between a plurality of detection channels. Hieftje et al. teach a method of near infrared evaluation of physical properties of samples in which absorbance is measured and then corrected by the corresponding weighting constants (Abstract, lines 7-8) using a computer (col. 5, line 39). At the time of the invention it would have been obvious to a person of ordinary skill in the art to combine the teaching of Hieftje with the teaching of Cooper/Wolleschensky so that the portion of the wavelength that will accurately quantify the property being measured is used (col. 6, lines 46-47).

48. For claim 53, Hieftje shows in Fig. 1 of actual heat of formation vs. near infrared heat of formation. This is a "calibration curve" plotting predicted and actual values which is shown in a straight line.

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49. For claim 54, Wolleschensky teaches that the sum signals are converted to digital signals and further processed by the computer (col. 8, lines 62-64).

50. For claim 57, Hieftje teaches that different wavelengths can be chosen which correlate optimally to the physical properties being measured using a statistical algorithm (col. 2, lines 47-49). By choosing different wavelength ranges for correlation (col. 2, lines 33-36), the weighting curve is therefore adjusted.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID CHONG whose telephone number is (571)270-3718. The examiner can normally be reached on Monday through Friday, 7:30 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Kornakov can be reached on 571-272-1303. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DC

/Michael Kornakov/
Supervisory Patent Examiner, Art Unit 4151